

# Seattle Permits

— part of a multi-departmental City of Seattle series on getting a permit

## Emergency and Standby Power Systems

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The Seattle Building, Fire and Electrical codes each contain requirements for back-up power systems. The three types of systems, as classified by the Seattle Electrical Code, are emergency, legally required standby, and optional standby power systems.

The Building and Fire codes specify which building systems require emergency or legally required standby power; the Electrical Code specifies how the power system is to be installed.

This Client Assistance Memo explains the basic code provisions regarding emergency and required standby power and how they are coordinated in the codes.

### Emergency Systems

The loads, or equipment, that are required to be supplied by emergency power systems are specifically identified in the Building and Fire codes. An emergency system automatically supplies illumination, power, or both to designated areas and equipment in the event of a failure of the normal supply to elements of a system intended for safety to human life. The table on pages 3 and 4 lists the types of equipment that function in emergency systems in Seattle.

### Legally Required Standby Systems

The loads, or equipment, that are required to be supplied by a legally required power system are specifically identified in the Building and Fire codes. Standby systems automatically maintain power to selected loads (other than those classed as emergency systems) in the event of failure of the normal source. The table on pages 3 and 4 lists equipment that makes up legally required standby systems in Seattle.

### Optional Standby Systems

Business or operations may require a continual supply of power in the event of a failure of the normal source. Optional standby systems are systems designated by the building owner or occupant to supply power to facilities or property where life safety does not depend on the performance of the system. Optional standby systems are typically installed to provide an alternate source of electric power to serve loads such as heating and refrigeration systems, data processing and communications systems, and industrial processes that, when stopped during any power outage, could cause discomfort, serious interruption of the process, or damage to a product or process.

### Building and Fire Code Provisions

Below are some examples in which Seattle codes require emergency sources and legally required standby sources.

**Emergency power sources** are required for:

- Smoke control systems
- Fire alarms systems
- Exit lighting
- Exit signs
- Elevator car lights
- High-rise elevator operation
- Fire pumps in high-rise buildings

**Legally required standby power sources** are required for:

- Pressurization systems in low-rise buildings
- Fire pumps in low-rise buildings
- Elevators used as accessible means of egress in low-rise buildings



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It is important to note that the Fire Code requires generators inside high-rise buildings be located in a separate room enclosed with two-hour fire-resistance-rated fire barriers. See Seattle Fire Code Section 604.14.1.

## Electrical Code Provisions

For emergency systems, power is required to be supplied to the equipment within 10 seconds. Additional time may be allowed to energize the loads after power becomes available. The table on pages 3 and 4 specifies the time allowed. Only loads that are required by the Building or Fire code to have emergency power may be supplied by the emergency power source unless the emergency source is of sufficient size to serve all emergency, required standby, and optional loads. Separate transfer switches must be provided for each of the emergency, required standby, and optional systems. Automatic load-shedding may be needed. The emergency power systems' wiring must be kept separate from required and optional power systems. See Seattle Electrical Code 700.9(B).

For legally required standby systems, power must be supplied within 60 seconds. These systems may be mingled with normal systems except as provided in Sections 701.10 and 695.6(B) of the Seattle Electrical Code.

## Access to Information

Links to electronic versions of DPD **Client Assistance Memos (CAMs)** and **commonly used forms** are available on the "Publications" page of our website at [www.seattle.gov/dpd/publications](http://www.seattle.gov/dpd/publications). Paper copies of these documents, as well as additional regulations mentioned in this CAM, are available from our Public Resource Center, located on the 20th floor of Seattle Municipal Tower at 700 Fifth Ave. in downtown Seattle, (206) 684-8467.

Type of equipment	Maximum Time to Energize Loads	SBC Section	SFC Section
<b>EMERGENCY POWER SYSTEMS</b>			
Exit signs	10 seconds	1011.5.3 403.11 High rises 405.10 Underground buildings	1011.5.2 604.2.14 High rises 604.2.15 Underground buildings 2403.12.6.1 Temporary tents, canopies, membrane structures
Exit illumination	10 seconds	1006.3 403.11 High rises 405.10 Underground buildings	1006.3 604.2.14 High rises 604.2.15 Underground buildings
Emergency voice/alarm communication	10 seconds	403.11 High rises 402.12 Covered mall buildings 405.10 Underground buildings 907.2.1.2 Assembly occupancies	604.2.14 High rises 604.2.13 Covered mall buildings 604.2.15 Underground buildings 907.2.1.2 Assembly occupancies
Fire detection	10 seconds	403.11 High rises 909.20.6.2 Smokeproof enclosures 405.10 Underground buildings	604.2.14 High rises 604.2.15 Underground buildings
Fire alarms	10 seconds	403.11 High rises 405.10 Underground building	604.2.14 High rises 604.2.15 Underground buildings
Smoke alarms in R-I occupancies	10 seconds	907.2.8.1.2, 907.2.10.2	907.2.8.1.2, 907.2.10.2
Smoke control systems in high-rise buildings, underground buildings & covered mall buildings	60 seconds	909.11 Smoke control 403.11 High rises 404.6 Atriums 405.10 Underground buildings	909.11
Fire pumps in high-rise buildings & underground buildings	60 seconds	403.11 High rises 405.10 Underground buildings	604.2.14 High rises 604.2.15 Underground buildings
Smoke-proof enclosures	60 seconds for ventilation; 10 seconds for fire detection	909.20.6.2 403.11 High rises	

Type of equipment	Maximum Time to Energize Loads	SBC Section	SFC Section
Elevator car operation in high-rise buildings & underground buildings	60 seconds	403.11 High rises 405.10 Underground buildings	604.2.14 High rises 604.2.15 Underground buildings
Elevator car lighting in high-rise buildings & underground buildings	10 seconds	403.11 High rises 405.10 Underground buildings	604.2.14 High rises 604.2.15 Underground buildings
Lights & power for high-rise building fire command center and mechanical equipment rooms	10 seconds	403.11 High rises	604.2.14 High rises
<b>LEGALLY REQUIRED STANDBY POWER SYSTEMS</b>			
Pressurization equipment for low-rise buildings <sup>1</sup>	60 seconds	909.22	909.22
Operation of elevators used as accessible means of egress in low-rise buildings <sup>1</sup>	60 seconds	1007.4 & .5	1007.4 & .5
Fire pumps in low-rise buildings <sup>1</sup>	60 seconds		

<sup>1</sup> Connection ahead of the service disconnecting means is an acceptable source of legally required standby power for these systems. Connection ahead of the service disconnecting means, or "tap ahead of the main" is a connection "located ahead of and not within the same cabinet, enclosure, or vertical switchboard section as the service disconnecting means.... The legally required standby service shall be sufficiently separated from the normal main service disconnecting means to prevent simultaneous interruption of supply through an occurrence within the building or groups of buildings served." See Section 701.11(E) of the Seattle Electrical Code.